

WHAT IS CLAIMED IS:

1. A method of arbitrating access to a data bus among bus devices, wherein the bus devices are linked by a plurality of arbitration rings, comprising:

- a) requesting access by a first one of the bus devices;
- b) checking whether a first signal, which indicates that one of the arbitration rings is enabled, is applied to an input of the first one of the bus devices;
- c) if the first signal is applied, outputting a second signal by the first one of the bus devices;
- d) checking whether, at the end of a predetermined time interval, the first signal is still applied at the input of the first one of the bus devices; and
- e) if the first signal is still applied at the end of the predetermined time interval, accessing the data bus by the first one of the bus devices;

wherein a respective priority is assigned to each of the arbitration rings.

2. The method as claimed in Claim 1,

wherein step a) is performed with a first priority;

wherein, in step b), the one of the arbitration rings is assigned to the first priority;

wherein, in step c), the second signal is output on the one of the arbitration rings that is assigned to the first priority; and

wherein the method further comprises:

checking whether the second signal is applied at an input of a respective bus device for an arbitration ring that has the lowest priority or for an arbitration ring that has a priority that is higher than the first priority;

outputting the second signal on the arbitration ring that has the lowest priority; and

accessing the data bus by the first one of the bus devices.

3. The method as claimed in Claim 2, further comprising representing, by a virtual bus device, access requests of the bus devices of a second priority in an arbitration ring that is assigned a higher, third priority.

4. The method as claimed in Claim 1, wherein the predetermined time interval is a bus clock pulse of the data bus.

5. A bus device for accessing a data bus and for coupling to a plurality of arbitration rings, wherein a priority is assigned to each arbitration ring, comprising:

- a) a requestor configured to request access to the data bus;
- b) a first checker configured to check whether a first signal, which indicates that one of the arbitration rings is enabled, is applied to an input of a first one of the bus devices;
- c) a first output device configured to output a second signal by the first one of the bus devices, if the first signal is applied;

- d) a second checker configured to check whether, at the end of a predetermined time interval, the first signal is still applied at the input of the first one of the bus devices; and
- e) an access device configured to access the data bus by the first one of the bus devices, if the first signal is still applied at the end of the predetermined time interval.

6. The bus device as claimed in Claim 5,

wherein the requestor is configured to request the access by the first one of the bus devices with a first priority;

wherein the one of the arbitration rings is assigned to the first priority;

wherein the first output device is configured to output the second signal on the one of the arbitration rings that is assigned to the first priority; and

wherein the bus device further comprises:

a third checker configured to check whether the second signal is applied at an input of a respective bus device for an arbitration ring that has the lowest priority or for an arbitration ring that has a priority higher than the first priority; and

a second output device configured to output the second signal on the arbitration ring that has the lowest priority.

7. The bus device as claimed in Claim 5, further comprising an representing device configured to represent access requests by the bus devices of a second priority in an arbitration ring that is assigned a higher, third priority.

8. The bus device as claimed in Claim 5, wherein the predetermined time interval is a bus clock pulse of the data bus.

9. A communication system, comprising:

a plurality of bus devices; and

at least one arbitration ring to couple the bus devices;

wherein each of the bus devices comprises:

- a) a requestor configured to request access to a data bus;
- b) a first checker configured to check whether a first signal, which indicates that one of the arbitration rings is enabled, is applied to an input of a first one of the bus devices;
- c) an output device configured to output a second signal by the first one of the bus devices, if the first signal is applied;
- d) a second checker configured to check whether, at the end of a predetermined time interval, the first signal is still applied at the input of the first one of the bus devices; and

- e) an access device configured to access the data bus by the first one of the bus devices, if the first signal is still applied at the end of the predetermined time interval.